

# MATERIAL SAFETY DATA SHEET

## 1. SUBSTANCE AND SOURCE IDENTIFICATION

National Institute of Standards and Technology  
Standard Reference Materials Program  
100 Bureau Drive, Stop 2300  
Gaithersburg, Maryland 20899-2300

SRM Number: 1616b  
MSDS Number: 1616b  
SRM Name: Sulfur in Kerosene (Low Level)

Date of Issue: 12 September 2006

MSDS Coordinator: Mario Cellarosi  
Telephone: 301-975-6776  
FAX: 301-926-4751  
E-mail: SRMMSDS@nist.gov

Emergency Telephone ChemTrec:  
1-800-424-9300 (North America)  
+1-703-527-3887 (International)

**Description:** Standard Reference Material (SRM) 1616b is intended for use in the evaluation of methods and the calibration of instruments used in the determination of total sulfur in fuel oils or materials of a similar matrix. SRM 1616b consists of 100 mL of low sulfur kerosene in an amber glass bottle.

**Substance:** Kerosene

## 2. COMPOSITION AND INFORMATION ON HAZARDOUS INGREDIENTS<sup>1</sup>

<b>Component:</b>	<b>Kerosene</b>
<b>Other Designations:</b>	<b>Kerosene</b> (kerosine; fuel oil no. 1; coal oil; range oil)
<b>CAS Number:</b>	8008-20-6
<b>EC Number (EINECS):</b>	232-366-4
<b>SRM Nominal Concentration (mass %):</b>	100
<b>EC Classification:</b>	Xn
<b>EC Risk (R No.):</b>	65
<b>EC Safety (S No.):</b>	2, 23, 24, 62

<sup>1</sup>Hazardous components 1 % or greater; Carcinogens 0.1 % or greater are listed in compliance with OSHA 29 CFR 1910.1200.

## 3. HAZARDS IDENTIFICATION

**NFPA Ratings (Scale 0–4):** Health = 2      Fire = 2      Reactivity = 0

**Major Health Hazards:** Respiratory tract irritation. Skin irritation. Central nervous system depression. Aspiration hazard.

### Potential Health Effects

**Inhalation:** Inhalation of kerosene may cause irritation to the mucous membranes and respiratory tract, chest pain, headache, drowsiness, disorientation, mood swings, loss of coordination, lung congestion, coma.

**Skin Contact:** Skin contact may cause irritation and skin disorders.

**Eye Contact:** Eye contact may cause irritation.

**Ingestion:** Ingestion of kerosene may cause gastrointestinal irritation, vomiting, diarrhea, stomach pain, irregular heartbeat, headache, drowsiness, dizziness, loss of coordination, aspiration hazard.

**Listed as a Carcinogen/  
Potential Carcinogen:**

**Kerosene**

Yes      No

\_\_\_\_\_ X In the National Toxicology Program (NTP) Report on Carcinogens.

\_\_\_\_\_ X In the International Agency for Research on Cancer (IARC) Monographs.

\_\_\_\_\_ X By the Occupational Safety and Health Administration (OSHA).

---

#### 4. FIRST AID MEASURES

---

<b>Inhalation:</b>	If adverse effects occur, remove to uncontaminated area. If not breathing, give artificial respiration by qualified personnel. Get immediate medical attention.
<b>Skin Contact:</b>	Rinse affected area with copious amounts of water for at least 15 minutes while removing contaminated clothing. Get medical attention, if needed.
<b>Eye Contact:</b>	Immediately flush eyes, including under the eyelids, with copious amounts of water for at least 15 minutes. Get immediate medical attention.
<b>Ingestion:</b>	Aspiration hazard. <b>DO NOT</b> induce vomiting. If vomiting occurs, keep head lower than hips to prevent aspiration. If not breathing, give artificial respiration by qualified personnel. Get immediate medical attention.

---

#### 5. FIRE FIGHTING MEASURES

---

<b>Fire and Explosion Hazards:</b>	Kerosene is a moderate fire hazard. Vapor is heavier than air and may ignite by a distant ignition source and flash back. Vapor/air mixtures are explosive above the flash point.
<b>Extinguishing Media:</b>	Regular dry chemical. Carbon dioxide. Water. Regular foam.
<b>Fire Fighting:</b>	Move container from fire area if it can be done without risk. Avoid inhalation of material or combustion by-products. Wear full protective clothing and NIOSH-approved self-contained breathing apparatus (SCBA).
<b>Component:</b>	<b>Kerosene, SRM 1616b</b>
<b>Flash Point:</b>	58.9 °C
<b>Method Used:</b>	Closed Cup
<b>Autoignition Temp.:</b>	210 °C
<b>Flammability Limits in Air</b>	
<b>UPPER (Volume %):</b>	5
<b>LOWER (Volume %):</b>	0.7

---

#### 6. ACCIDENTAL RELEASE MEASURES

---

<b>Occupational Release:</b>	Avoid heat, flames, sparks, and other sources of ignition. Remove sources of ignition. Reduce vapors with water spray. Absorb small, spilled material volumes with sand or other non-combustible material. Collect spilled material in an appropriate container for disposal.
<b>Disposal:</b>	Refer to Section 13, "Disposal Considerations".

---

#### 7. HANDLING AND STORAGE

---

<b>Storage:</b>	Store and handle in accordance with all current regulations and standards. Subject to storage regulations, U.S. OSHA 29 CFR 1910.106. Keep separated from incompatible substances.
<b>Safe Handling Precautions:</b>	See Section 8, "Exposure Controls and Personal Protection".

---

#### 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

---

<b>Exposure Limits:</b>	<b>Kerosene</b> ACGIH: 200 mg/m <sup>3</sup> TWA (skin) (restricted to conditions with negligible aerosol exposure) NIOSH: 100 mg/m <sup>3</sup> recommended TWA (10 h)
-------------------------	---

<b>Ventilation:</b>	Provide local exhaust ventilation system.
<b>Respirator:</b>	If necessary, refer to the "NIOSH Guide to the Selection and Use of Particulate Respirators Certified under 42 CFR 84" for selection and use of respirators certified by NIOSH.
<b>Eye Protection:</b>	Wear safety goggles. An eye wash station should be readily available near areas of use.
<b>Personal Protection:</b>	Wear appropriate protective clothing and chemically resistant gloves to prevent skin exposure.

---

## 9. PHYSICAL AND CHEMICAL PROPERTIES

---

<b>Component:</b>	<b>Kerosene</b>
<b>Appearance and Odor:</b>	Colorless to brown. Liquid. Petroleum odor.
<b>Boiling Point:</b>	151 °C to 301 °C
<b>Freezing Point:</b>	-18 °C
<b>Density:</b>	0.827.1 kg/m <sup>3</sup> (@15 °C)
<b>Water Solubility:</b>	Insoluble.
<b>Solvent Solubility:</b>	Soluble in petroleum solvents.

---

## 10. STABILITY AND REACTIVITY

---

<b>Stability:</b>	<u>  X  </u> Stable <u>      </u> Unstable
	Stable at normal temperatures and pressure.
<b>Conditions to Avoid:</b>	Avoid heat, flames, sparks, and other sources of ignition. Avoid contact with incompatible material.
<b>Incompatible Materials:</b>	Oxidizing materials. Halogens.
<b>Fire/Explosion Information:</b>	See Section 5, "Fire Fighting Measures".
<b>Hazardous Decomposition:</b>	Thermal decomposition will produce oxides of carbon.
<b>Hazardous Polymerization:</b>	<u>      </u> Will Occur <u>  X  </u> Will Not Occur

---

## 11. TOXICOLOGICAL INFORMATION

---

<b>Route of Entry:</b>	<u>  X  </u> Inhalation <u>  X  </u> Skin <u>  X  </u> Ingestion
<b>Toxicity Data:</b>	<b>Kerosene</b> Human, Oral TC <sub>LO</sub> : 5.7 mg/kg Human, Intermittent Inhalation TC <sub>LO</sub> : 0.15 mg/m <sup>3</sup> (5 years) Rat, Continuous Inhalation TC <sub>LO</sub> : 500 mg/m <sup>3</sup> (4 weeks) Rat, Intermittent Inhalation TC <sub>LO</sub> : 300 mg/m <sup>3</sup> (12 weeks)
<b>Tumorigenic, Reproductive, Mutagenic Data:</b>	Kerosene has been investigated as a mutagenic effector.
<b>Health Effects (Acute and Chronic):</b>	See Section 3: "Hazards Identification" for potential health effects.

---

## 12. ECOLOGICAL INFORMATION

---

<b>Ecotoxicity Data Summary:</b>	Fish Toxicity Rainbow Trout, Donaldson Trout ( <i>Oncorhynchus mykiss</i> ) LC <sub>50</sub> : 5 000 µg/L (96 d) (mortality)  Invertebrate Toxicity Giant Water Bug ( <i>Belostoma indicum</i> ) EC <sub>50</sub> : 1 270 µg/L (7 h) (immobilization)
----------------------------------	---

---

### 13. DISPOSAL CONSIDERATIONS

---

**Waste Disposal:** Dispose in accordance with all applicable federal, state, and local regulations. Subject to disposal regulations U.S. EPA 40 CFR 262, Hazardous Waste Number D001.

---

### 14. TRANSPORTATION INFORMATION

---

**U.S. DOT and IATA:** Kerosene, UN1223, Hazard Class 3, Packing Gp. III.

---

### 15. REGULATORY INFORMATION

---

**U.S. Regulations:** CERCLA Sections 102a/103 (40 CFR 302.4): Not regulated.  
SARA Title III Section 302 (40 CFR 355.30): Not regulated.  
SARA Title III Section 304 (40 CFR 355.40): Not regulated.  
SARA Title III Section 313 (40 CFR 372.65): Not regulated.  
OSHA Process Safety (29 CFR 1910.119): Not regulated.  
SARA Title III Sections 311/312 Hazardous Categories (40 CFR 370.21):

ACUTE: Yes.

CHRONIC: No.

FIRE: Yes.

REACTIVE: No.

SUDDEN RELEASE: No.

**State Regulations:** California Proposition 65: Not regulated.

**CANADIAN Regulations**

**WHMIS Classification:** Not determined.

**EUROPEAN Regulations**

**EC Classification (assigned):** Xn Harmful.

**EC Risk Phrases:** R65 Harmful: may cause lung damage if swallowed.

**EC Safety Phrases:** S2 Keep out of reach of children.  
S23 DO NOT breathe gas, fumes, vapor, or spray.  
S24 Avoid contact with skin.  
S62 If swallowed, DO NOT induce vomiting: seek medical advice and show container or label.

**National Inventory Status**

**U.S. Inventory (TSCA):** Kerosene: Listed on inventory.

**TSCA 12(b)**

**Export Notification:** Kerosene: Not listed.

---

### 16. OTHER INFORMATION

---

**Sources:** MDL Information Systems, Inc., MSDS *Kerosene*, 15 September 2005.

**Disclaimer:** Physical and chemical data contained in this MSDS are provided only for use as a guide in assessing the hazardous nature of the material. The MSDS was prepared carefully, using current references; however, NIST does not certify the data in the MSDS. The certified values for this material are given in the NIST Certificate of Analysis.